CLAIMS

What is claimed is:

1. An apparatus to enable color-based toner particle separation from a mixture of colored toner particles, comprising:

at least one charging source, to charge a photoconducting drum;

a developer unit to distribute toner elements on a surface of said drum; and

an illumination unit to provide at least one selected wavelength of light to said drum surface, said illumination unit being operated after said developer unit operates.

2. The apparatus of claim 1, comprising at least one cleaning unit, to clean off toner particles that are weakly adhered to said drum surface.

3. The apparatus of claim 1, wherein said illumination unit provides a plurality of light wavelengths.

4. The apparatus of claim 1, comprising a plurality of photoconducting drums.

5. A method for separating particles of at least one color toner from a mixture of colored toner particles, the method comprising:

charging a conductive drum surface;

depositing a mixture of colored toner particles on said drum surface; and

illuminating said drum surface with at least one selected light wavelength, said illumination enhancing the adherence of toner particles that transmit said selected light wavelength.

6. The method of claim 5, further comprising cleaning off from said drum surface toner particles that do not transmit said selected light wavelength.

7. The method of claim 6, further comprising re-using cleaned off toner particles.

8. The method of claim 7, further comprising cleaning off from said drum surface a mixture of toner particles that transmit said selected light wavelength, and separating

particles of at least one color toner from said mixture of toner particles cleaned off from said drum surface.

9. The method of claim 5, further comprising cleaning off from said drum surface the toner particles that transmit said selected light wavelength.

10. The method of claim 9, further comprising separating particles of at least one color toner from a mixture of colored toner particles that transmit said selected light wavelength.